

1 Claims

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3 1. A circuit arrangement for controlling an inductive load,
4 in particular a protective circuit providing safe
5 operation of an inductive load, which arrangement has:
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7 - a first and a second input (1, 2), with the first input
8 (1) being connected to a first potential (+) of a supply
9 voltage source (6) and the second input (2) being
10 connected to a second potential (-) of the supply voltage
11 source (6),
12 - an output (3) to which the load (5) is connected, with
13 said load (5) being connected on the one hand to the
14 output (3) and on the other hand to the second potential
15 (-) of the supply voltage source (6),
16 - a first switch (S1), which can be controlled by a first
17 control signal (UST1), for switching the load (5)
18 connected on the one hand to the first input (1) and on
19 the other hand to the output (3) on and off,
20 - a freewheeling circuit (FLK) which is connected on the one
21 hand to the second input (2) and on the other hand to the
22 output (3) and has a second switch (S2), and
23 - a monitoring unit (8, 11) which monitors a potential (UA)
24 in the freewheeling circuit (FLK) and closes and/or opens
25 the second switch (S2) via a second control signal (UST2)
26 as a function of said potential (UA), characterized in
27 that the monitoring unit (8) has a delay element (12) that
28 opens the second switch (S2) after a predefined period
29 (Δt) when the predefined voltage threshold ($U_{A, \text{Min}}$) has
30 been undershot or exceeded, with the result that after the
31 predefined period (Δt) the energy stored in the load (5)
32 will have discharged via the freewheeling circuit.
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34 2. The circuit arrangement as claimed in claim 1,
35 characterized in that the monitoring unit (8) has a
36 linking unit (9) having two inputs (ENA; UE, Reset) and
37 one output (UST1), with the first control signal (UST1)

1 being dependent on the level and the time curve of the
2 signals at the inputs (ENA; UE, Reset).

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4 3. A method for controlling an electrical load, said method
5 having the following steps:

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7 - Checking an actuation status of a first switch (S1),
8 - Comparing a first voltage (UA) with a predefined voltage
9 threshold ($U_{A, \text{Min}}$), with a fault situation being determined
10 depending on said comparison and the actuation status of
11 the first switch (S1),
12 - Operating a second switch (S2) as a function of said
13 comparison and/or the actuation status of the first switch
14 (S1), characterized in that operating of the second switch
15 (S2) is delayed by a predefined period (Δt), with the
16 result that after the predefined period (Δt) the energy
17 stored in the load (5) will have discharged via the
18 freewheeling circuit.

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20 4. The method as claimed in claim 3, characterized in that
21 after a fault situation the first switch (S1) will be
22 closed by a switch-on-again signal.